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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,596	12/07/2001	Michael M. Becker	GP123-02.UT	6565
21365	7590	10/30/2007	EXAMINER	
GEN PROBE INCORPORATED 10210 GENETIC CENTER DRIVE Mail Stop #1 / Patent Dept. SAN DIEGO, CA 92121			SISSON, BRADLEY L	
			ART UNIT	PAPER NUMBER
			1634	
			NOTIFICATION DATE	DELIVERY MODE
			10/30/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdept@gen-probe.com  
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belindao@gen-probe.com

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/020,596	BECKER, MICHAEL M.	
	<b>Examiner</b> /Bradley L. Sisson/	<b>Art Unit</b> 1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### **Status**

- 1) Responsive to communication(s) filed on 24 April 2007.
- 2a) This action is **FINAL**.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### **Disposition of Claims**

- 4) Claim(s) 1,3-5,8-13,16,17,19,20,28-32,34,36 and 61-97 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1,3-5,8-13,16,17,19,20,28-32,34,36 and 61-97 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### **Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### **Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### **Attachment(s)**

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application
- 6) Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1, 3-5, 8-13, 16, 17, 19, 20, 28-32, 34, 36, and 61-97 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the method of claim 1 with the added limitations that there be a detectable label present, and the polycation be selected from those identified in Example 1 (*i.e.*, poly-L-lysine hydrobromide, poly-L-histidine hydrobromide, poly-L-arginine hydrobromide, and hexadimethrine bromide), with a salt concentration that ranges between 0.15 to 0.45 M, and that the unincorporated label is removed from the reaction prior to detecting complex, does not reasonably provide enablement for detecting when no label is present, or for the use of any polycation, or for conducting hybridization reactions at any temperature, or for using any salt at any concentration. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

3. While the specification has been found to contain forward-looking statements as to the applicability of polycationic polymers to facilitate hybridization reactions, the specification has not been found to teach just which characteristic(s) are essential so to achieve the unexpected result.

4. Acknowledgement is made of the teachings at page 31, third paragraph, an the statement that one of skill in the art could screen for additional polycationic polymers, however, the methods

is not drawn to a method of screening for said polycationic polymers, but rather, for the use of those that function in the claimed method.

5. As presently worded, the method of claims 1, 3-5, 10-13, 16, 17, 19, 20, 28-32, 34, 61-71, 74-87, 89-97 do not require use of any detectable label, yet one is to determine the presence of the duplex. The specification is silent as to how one is to detect the presence of something when no detectable label is used. And in those instances where a label is recited in a claim, there is no requirement of unincorporated label be removed from the assay prior to one conducting any detection step. In those instances where there are multiple labels, and that they are capable of interacting with one another, applicant is urged to consider adopting a set of claims directed to such instead of relying upon a dependent claim to introduce the aspect of labeled probes when as here no detection means are recited in the independent claim.

6. In accordance with claims 34 and 87 one is to “diagnose” the “absence” of any viral agent or any other “organism.” The specification is silent as to how one is to “diagnose” absence. The claims do not recite means, and the specification does not disclose how one would be able to determine with a high degree of confidence that there is not one copy of a virus in a given sample, when the sample is without limit. The specification is silent as to how one would be able to differentiae the difference between background signal and the presence of a single copy of a nucleic acid. Applicant is urged to consider narrowing the claims to where one is determining the presence of a viral agent, not its absence.

7. For the above reasons, and in he absence of convincing evidence to the contrary, claims 1, 3-5, 8-13, 16, 17, 19, 20, 28-32, 34, 36, and 61-97 are rejected under 35 U.S.C. 112, first paragraph.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1, 3-5, 8-13, 16, 17, 19, 20, 28-32, 34, 36, and 61-97 rejected under 35

U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

10. Claim 1 has been amended, and claim 68 has been added wherein both of said claims refer to “polynucleotide probe,” “target nucleic acid,” “water soluble polycationic polymer,” and “probe : target duplex.” It is noted that each of these listed members are a polymer. Said claims and claims that depend therefrom refer to “said polymer.” Given to the presence of numerous polymers, it is less than clear just which polymer applicant is referring to at any given instance. Applicant is urged to consider reciting >>said water soluble polycationic polymer<< instead of “said polymer,” or to identify the specific polymer intended if in fact it is not the “water soluble polycationic polymer.”

11. Claim 28 is confusing as to how the “salt” can or does relate to the water-soluble polycationic polymer. Seemingly the limitation of “multivalent cation” could be encompassed by both the “multivalent cations” and on the “water soluble polycationic polymer” as there is nothing that prohibits the salt of a multivalent cation from being the aforementioned polymer. If they are one and the same, then a further issue may exist as to how the narrow range of “at least about 5 mM” is to equate with the newly-added range of “about 1  $\mu$ M to about 1000  $\mu$ M” as found in claim 1, and from which claim 28 depends. Similar issues of clarity exist with regard to claim 30, and claim 31, which depends therefrom.

***Claim Rejections - 35 USC § 103***

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

14. Claims 1, 3, 13, 16, 17, 19, 20, 32, 36, 61, 62 63, 64 65, 68, 69, 77, 78, 80, 81, and 86-95 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 91/08480 (Pontius).

15. Pontius discloses conducting any of a variety of nucleic acid based assays, including hybridization reactions. Pontius, page 5, disclose polymers, homopolymer and copolymers, that are polycations.

16. Pontius specifically identifies polylysine, polyarginine, and polyethyleneimine.

17. Pontius, page 7, line 36, bridging to page 8, discloses incorporating a polycationic detergent into the assay.

18. Pontius, page 28, disclose detection means are well known in the art. Pontius, page 28, also discloses that some titration of reactants may be required to achieve “optimal reaction conditions.”

19. Pontius has not been found to specifically teach the molecular weight range of the water-soluble polycationic polymer, the temperature range of the reaction conditions, or the order that reactants are combined. Such limitations, however, are not deemed to constitute a patentable distinction. Further, said limitations are deemed to be the result of routine optimization.

It is well settled that routine optimization is not patentable, even if it results in significant improvements over the prior art. In support of this position, attention is directed to the decision in *In re Aller, Lacey, and Hall*, 105 USPQ 233 (CCPA 1955):

Normally, it is to be expected that a change in temperature, or in concentration, or in both, would be an unpatentable modification. Under some circumstances, however, changes such as these may impart patentability to a process if the particular ranges claimed produce a new and unexpected result which is different in kind and not merely in degree from the results of the prior art. *In re Dreyfus*, 22 C.C.P.A. (Patents) 830, 73 F.2d 931, 24 USPQ 52; *In re Waite et al.*, 35 C.C.P.A. (Patents) 1117, 168 F.2d 104, 77 USPQ 586. Such ranges are termed "critical" ranges, and the applicant has the burden of proving such criticality. *In re Swenson et al.*, 30 C.C.P.A. (Patents) 809, 132 F.2d 1020, 56 USPQ 372; *In re Scherl*, 33 C.C.P.A. (Patents) 1193, 156 F.2d 72, 70 USPQ 204. However, even though applicant's modification results in great improvement and utility over the prior art, it may still not be patentable if the modification was within the capabilities of one skilled in the art. *In re Sola*, 22 C.C.P.A. (Patents) 1313, 77 F.2d 627, 25 USPQ 433; *In re Normann et al.*, 32 C.C.P.A. (Patents) 1248, 150 F.2d 708, 66 USPQ 308; *In re Irmscher*, 32 C.C.P.A. (Patents) 1259, 150 F.2d 705, 66 USPQ 314. More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Swain et al.*, 33 C.C.P.A. (Patents) 1250, 156 F.2d 239, 70 USPQ 412; *Minnesota Mining and Mfg. Co. v. Coe*, 69 App. D.C. 217, 99 F.2d 986, 38 USPQ 213; *Allen et al. v. Coe*, 77 App. D. C. 324, 135 F.2d 11, 57 USPQ 136. (Emphasis added)

20. Attention is directed to the decision in *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007)

When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill in the art has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense.

21. The reactants are disclosed in the prior art, and have been shown to perform in a predictable manner. While the cited prior art does not identify the recited range in molecular weight, temperature range, or order of steps, such is deemed to be the product of routine optimization as they all lead to predictable solutions. It is further noted that Pontius teaches that titration of reactants may be necessary to achieve optimal results.

22. For the above reasons, and in the absence of convincing evidence to the contrary, claims 1, 3, 13, 16, 17, 19, 20, 32, 36, 61, 62 63, 64 65, 68, 69, 77, 78, 80, 81, and 86-95 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 91/08480 (Pontius).

### *Conclusion*

23. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent 4,876,335 (Yamane et al.) discloses using a probe that has polylysine linked thereto. As a result of the polylysine being linked to the probe, it meets the limitation of it being water-soluble. Also, by the polylysine being linked to the probe, the probe becomes an anion. Yamane et al., do not teach dissociating the polylysine from the probe (applicant's step b) of claim 1).

24. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

25. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

26. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley L. Sisson whose telephone number is (571) 272-0751. The examiner can normally be reached on 6:30 a.m. to 5 p.m., Monday through Thursday.

27. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

28. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bradley L. Sisson/  
Primary Examiner  
Art Unit 1634

BLS